



September 12, 2018

Mr. Rick Jardine  
On-Scene Coordinator  
U.S. Environmental Protection Agency Region 4  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street  
Atlanta, Georgia 30303

**Subject: Public Housing Authority Sampling and Removal Report, Rev. 0  
35<sup>th</sup> Avenue Superfund Site  
Technical Direction Document (TDD) No. 0002/OT-02-002  
Contract No. EP-S4-15-01**

Dear Mr. Jardine:

Oneida Total Integrated Enterprises (OTIE), Superfund Technical Assessment Response Team (START) has prepared this letter report detailing activities conducted at Public Housing Authority properties located within the study boundaries of the 35th Avenue Superfund Site (the Site) located in Birmingham, Jefferson County, Alabama (Figure 1). The work was performed in support of the U.S. Environmental Protection Agency (USEPA) under Contract Number (No.) EP-S4-15-01, TDD No. 0002/OT-02-002.

The scope of the work performed on Public Housing Authority properties was to conduct sampling and analysis activities in support of a Removal Site Evaluation and Time-Critical Removal Action (TCRA) at the Site. Specifically, START was tasked to conduct surface soil and depth sampling at Collegeville and Fairmont Housing Authority properties to identify the nature and extent of hazardous constituents associated with historic or current operations at the Site or nearby facilities.

The work performed under this project consisted of START (OTIE) personnel documenting field activities with logbook notes and digital photographs, collecting surface soil and depth samples (up to 24 inches below ground surface [bgs]), screening soils (coarse and fine fractions) for metals concentrations using a Niton<sup>®</sup> XL3t handheld X-Ray Fluorescence (XRF) instrument, and submitting samples for laboratory analyses. Soil samples collected as part of the Removal Site Evaluation were submitted to TestAmerica Laboratories (TestAmerica), Savannah, Georgia for low-level polycyclic aromatic hydrocarbons (PAHs), and/or Resource Conservation and Recovery Act (RCRA) metals. A subset of the

samples was also analyzed for TCL semivolatile organic compounds (SVOC). Soil samples collected as part of the Depth Sampling efforts were submitted to either TestAmerica or Contract Laboratory Program (CLP) laboratories for low-level PAHs, total arsenic, total lead, total aluminum, and/or total iron analyses.

All activities and procedures conducted by START were performed in accordance with the EPA Region 4 Science and Ecosystem Support Division (SESD) Field Branches Quality System and Technical Procedures (FBQSTP) and the Site-specific Quality Assurance Project Plan (QAPP)/Site Sampling Plan (SSP).

### **Site Description**

The Site encompasses three residential neighborhoods: Fairmont, Collegeville, and Harriman Park; in Birmingham, Jefferson County Alabama. The Fairmont neighborhood comprises the western portion of the Site, Collegeville the southern portion, and Harriman Park the eastern portion. The geographic coordinates for an approximate center point of the Site are 33.553123 North latitude and -86.806847 West longitude.

For the purpose of this letter report, the Site information will be narrowed to only include the Collegeville Housing Authority properties located at 3001 Huntsville Road, 3031 29<sup>th</sup> Avenue North, and 3001 29<sup>th</sup> Avenue North (Figure 1); and the Fairmont Housing Authority properties located at 3033 44<sup>th</sup> Avenue North and 3040 44<sup>th</sup> Avenue North (Figure 2).

### **Location Description**

This work focused on five Collegeville Housing Authority owned parcels (012200133001045002, 012200133001045004, 012200133001045001, 012200133001045003, and 012200133001045000) and two Fairmont Housing Authority owned parcels (012200123008035000 and 012200123009001000) (Figure 2). For sampling purposes, the parcels were labeled CV-0005, CV-0008, CV-0748, CV-0971, CV-1363, FM-0160, and FM-0161.

As part of the Removal Site Evaluation, the number of composite surface soil (0 to 4 inches bgs) samples collected per parcel was based on the size of the parcel as indicated by the Jefferson County Tax Assessor's Office. Each sampling location was comprised of <5,000 square feet. Grab surface soil samples were collected from apparent exposure pathways where active play sets are located, low-lying areas, and/or drainage areas. Paved areas, soil under stationary fixed structures, and areas influenced with drip lines and burn areas were not sampled. Each field sampling team used a Trimble® Global

Positioning System (GPS) instrument equipped with ESRI ArcMap<sup>®</sup> to identify the boundary for each parcel investigated and the area comprising each sampling location. The sample location coordinates (in decimal degree format) for all soil aliquots were collected and recorded using a Trimble<sup>®</sup>.

Samples collected as part of the Depth Sampling efforts were from the same aliquot locations sampled during the Removal Site Evaluation. Each field sampling team used a Trimble<sup>®</sup> GPS instrument equipped with ESRI ArcMap<sup>®</sup> to navigate to each of the geographic coordinates for surface soil aliquots sampled during the Removal Site Evaluation. Geographic coordinates for sampling locations are presented in Table 1.

## **Soil Sampling Activities**

### Removal Site Evaluation

A total of 229 surface soil samples (200 field samples and 29 field duplicates) were collected from five Collegeville Housing Authority parcels; and 154 surface soil samples (139 field samples and 15 duplicates) were collected from two Fairmont Housing Authority parcels in February 2013 and June 2013. A summary of the samples collected as part of this work is provided in Table 2.

Composite soil samples were collected from 0 to 4 inches bgs using stainless steel spoons. Where encountered, sod or grass turf was first scrapped off with a flat shovel prior to sampling. Sampling jars were filled with the minimum soil volume needed to conduct the necessary analysis. Any remaining sample volume, and scrapped sod or grass turf, was returned to the individual aliquot points.

The coarse fraction of each sample was screened ex situ for RCRA metals using an XRF instrument and submitted to TestAmerica for PAH analysis in accordance with SW846-8270C (analysis of the complete SVOC TCL was requested for seven of these samples). A portion of the field samples were sieved using a 2-millimeter sieve (fine fraction) and screened to assess the lead uptake of the contamination. In order to confirm XRF screening results, a subset of the samples (coarse or fine fractions) was submitted to TestAmerica for metals analysis in accordance with SW846-6010C/7471B. The laboratory project numbers for each of the samples analyzed is presented in Table 2.

### Depth Sampling

A total of 95 depth samples (87 field samples and eight field duplicates) were collected in July 2014, October 2014, and December 2015 to determine the vertical extent of contamination in the soil of 22 locations (CV0005AA, CV0005AC, CV0005BB, CV0005E, CV0005Y, CV0748WW, CV0971A, CV0971AI, CV0971AO, CV0971AP, CV0971E, CV0971JJ, CV0971K, CV0971NN, CV0971O,

CV0971P, CV0971SS, CV0971TT, CV0971VV, CV0971WW, CV1363I, and FM0161AV) where surface sampling results indicated elevated concentrations of contaminants of concern. Depth samples were collected from the 6-inch, 12-inch, 18-inch, and 24-inch bgs depths at each aliquot location previously assessed for the location. Where encountered, sod or grass turf was first scrapped off with a flat shovel prior to sampling. A clean and decontaminated hand auger bucket was used to auger to 6 inches bgs at each aliquot point for a sample. Once the sampling depth was reached, a second clean and decontaminated auger bucket was used to collect sample material from each aliquot comprising the 6-inch depth composite sample. Following sample collection, the same auger bucket was used to auger down to 12-inch sampling depth. Once that sampling depth was reached, a third clean and decontaminated auger bucket was used to collect sample material from 12-inch depth. The process of hand augering to the desired depth and using a clean and decontaminated auger bucket to collect the sample was repeated for the 18- and 24-inch depth samples. Auger refusal was sporadically encountered at varying depths throughout the Site. In response to field conditions, the exact number of aliquots per sample was determined in the field. A summary of the samples collected as part of the depth sampling efforts is provided in Table 2.

Soil from each aliquot at each sample depth was placed on dedicated plastic sheeting and logged with photographs and notes. The aliquots for each depth sample were then homogenized in a stainless steel bowl using a stainless steel spoon, and containerized for laboratory PAH analysis in accordance with either SW846-8270D (TestAmerica) or SOM02.3 (CLP) and metals (aluminum, arsenic, iron, and/or lead) analysis in accordance with either SW846-6010C (TestAmerica) or ILM02.3 (CLP). Sampling jars were filled with the minimum soil volume needed to conduct the necessary analysis. Any remaining sample volume, and scrapped sod or grass turf, was returned to the individual aliquot points. The laboratory project numbers for each of the samples analyzed is presented in Table 2.

## **Results**

To assess the significance of the laboratory results, soil samples were compared to Site-specific cleanup goals for the project based on the Region 4 Removal Management Levels (RML) for direct exposure to residential soil updated 2014. A summary of the laboratory samples by parcel is provided in Tables 3 to 9. Depth sampling results are summarized in Table 10.

The results and conclusions are summarized as follows:

- XRF screening results indicated the presence of lead and arsenic at concentrations exceeding the cleanup goal for the Site in surface soil samples collected in 12 locations (two in CV-0005, four in CV-0008, five in CV-0971, and one in CV-1363). Arsenic was detected at a concentration slightly above the cleanup goal of 61 milligrams per kilogram (mg/kg) in one sieved (fine fraction) sample collected from CV1363I (61.3 parts per million [ppm]). Lead was detected at concentrations above the cleanup goal of 400 mg/kg in six unsieved (coarse fraction) and 12 sieved (fine fraction) samples. XRF lead screening results above the cleanup goal in sieved (fine fraction) samples ranged from 404 ppm in the sample collected from CV0005AA to 1,172 ppm in the grab sample collected from CV0008AB. Unsieved (coarse fraction) sample concentrations for lead ranged from 415 ppm in the grab sample collected from CV0971AO to 1,058 ppm in the grab sample collected from CV0008AB. Only the sample collected from CV1363I indicated a cleanup goal exceedance for both arsenic and lead. Laboratory metals analysis confirmed XRF screening results.
- Laboratory metals analysis indicated the presence of lead and arsenic at concentrations exceeding the cleanup goal for the Site in surface soil samples collected from four locations (one in CV-0005 and three in CV-0971). Lead results above the cleanup goal in unsieved (coarse fraction) samples ranged from 410 mg/kg in the sample collected from CV0005Y to 470 mg/kg in the sample collected from CV0971A. Arsenic was also detected at a concentration of 150 mg/kg in sample location CV0971A. With the exception of CV0971E, the locations with metals exceedances did not have PAH exceedances.
- Laboratory PAH analysis indicated the presence of Benzo(a)Pyrene and Benzo(a)Pyrene Total Equivalence Quotient (BaP TEQ) concentrations exceeding the cleanup goal for the Site of 1.5 mg/kg in surface soils collected from 11 locations (two in CV-0005, one in CV-0748, seven in CV-0948, and one in FM-0161). Six locations had only a BaP TEQ exceedance while eleven had both a Benzo(a)pyrene and BaP TEQ exceedance. Benzo(a)pyrene results above the cleanup goal ranged in concentration from 1.6 mg/kg in the sample collected from CV0005BB to 4.1 mg/kg in the sampled collected from CV0971P. BaP TEQ results above the cleanup goal ranged in concentration from 1.66 mg/kg in CV0971JJ to 6.21 mg/kg in CV0971P. With the exception of CV0971E, the locations with PAH exceedances did not have metals exceedances.
- Laboratory results for depth samples collected beyond 4 inches bgs and to a maximum of 24 inches bgs indicated the presence of Benzo(a)pyrene, BaP TEQ, arsenic, and lead concentrations

in exceedance of the cleanup goal in four locations (CV0005E, CV0971AP, CV0971P, CV0971TT, and CV0971WW).

Electronic copies of the laboratory reports and the START Data Validation Memos prepared for each of the packages are included as an attachment to this report.

### **Anomaly**

One parcel (CV-0008) is restricted from residential use since it is reserved for maintenance activity only. Four locations were identified on this parcel above residential cleanup goals for the Site, however this parcel is outside the scope for the residential Removal Action.

### **Conclusion**

START collected a total of 478 soil samples from 339 sampling locations located on seven parcels owned by the Collegeville and Fairmont Housing Authorities. XRF screening and/or laboratory analytical results showed 15 locations (CV0005AA, CV0005E, CV0008A, CV0008AB, CV0008E, CV0008F, CV0971A, CV0971AO, CV0971AP, CV0971E, CV0971K, CV0971SS, CV0971VV, CV0971WW, and CV1363I) with a lead concentration in exceedance of the cleanup goal of 400 mg/kg. Two of those locations (CV0971A and CV1363I) also had arsenic in exceedance of the cleanup goal of 61 mg/kg. PAH exceedances, specifically BaP TEQ, were identified in 11 locations (CV0005AC, CV0005BB, CV0748WW, CV0971AI, CV0971E, CV0971JJ, CV0971NN, CV0971O, CV0971P, CV0971TT, and FM0161AV). Only CV0971E had exceedances for both metals and PAHs. Depth sampling was performed as part of the TCRA to assess vertical extent of contamination in all of these locations except CV-0008.

Removal actions have been completed on all Collegeville and Fairmont Housing Authority property locations that exceeded project cleanup goals. The action taken by the EPA is protective of human health.

If you have any questions or comments regarding this letter report or require any additional information please feel free to contact me or Russell Henderson, START Project Manager, at 678-355-5550.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Henderson", with a long horizontal flourish extending to the right.

Russell Henderson  
START Project Manager

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cc: Greg Kowalski, START Project Manager  
Katrina Jones, EPA Project Officer  
OTIE START File

Enclosures: Figures, Tables, Photo Log, Logbook Notes, Laboratory Analytical Reports

## **FIGURES**

## **TABLES**

## **PHOTO LOG**

**LOGBOOK NOTES**

**LABORATORY ANALYTICAL REPORTS**